



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,341	07/18/2003	Yuhua Tong	A2433-US-NP XERZ 2 01058	4810

7590 02/01/2006

Richard M. Klein, Esq.
FAY, SHARPE, FAGAN, MINNICH & McKEE, LLP
Seventh Floor
1100 Superior Avenue
Cleveland, OH 44114-2579

EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,341

Applicant(s)

TONG ET AL.

Examiner

Christopher RoDee

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-11, 14, 16 and 18-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 14, 16, and 18-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 December 2005 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-9, 18, and 38-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The above rejected claims have been amended to specify that the fluoropolymer is homogeneously dispersed in the binder of the charge transport layer. Applicants state that this new limitation is inherently supported by the specification as filed because no gradient of the fluoropolymer is discussed and because the charge transport layer in Example II is formed from a solution, which is a homogeneous liquid (response p. 9).

The Examiner has carefully reviewed the specification in light of applicants' remarks and this new limitation. Although a claim limitation need not have literal basis in the specification, the specification as filed must show that the subject matter claimed is described. Applicants are correct that the specification does not describe a gradient for the charge transport layer's fluoropolymer. However, the specification provides no discussion of the distribution of the fluoropolymer in the charge transport layer. The fact that the specification does not describe one embodiment (i.e., a gradient) that would be outside the scope of the claims does not mean that the specification does describe an embodiment (i.e., homogeneous) that would be within the scope of the claim. The specification is simply silent as to the distribution of the fluoropolymer in the charge transport layer. Specification Example II does state that the charge transport layer components, including the fluoropolymer, are present in a solution. Applicants are correct that a solution is a homogeneous liquid. However, there is no indication in the specification that drying this solution will also result in a homogenous layer. As is well known in the chemical arts, different materials have different solubilities in a liquid. As the solution is dried (i.e., the solvent is removed) some materials can come out of solution sooner than others. In such a situation some of the materials can solidify from the layer sooner than others. This does not give a homogenous layer as asserted in the response. There is no indication that the drying procedure in Example II causes all materials of the solution to come out of solution at that same time such that the fluoropolymer is homogeneously distributed in the charge transport layer.

The specification does not describe the claims as currently presented. The claims are properly rejected as not being in accordance with the section and paragraph of the Code.

Art Unit: 1756

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-11, 14, 16, and 18-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 references "said charge transport component" at line 7 but no such component is previously presented in the claim. It is unclear which layer this layer contains this component. It is also unclear what "said components" refers to in this claim. Is it only the recited binder, fluoropolymer, and charge transport component or are other "components" permitted. Clarification is required. Claims 3-9, 18, and 38-40 are rejected because of their dependence on claim 1 and because they contain by incorporation the same subject matter.

Claim 3 is indefinite as presented because there is not clear antecedent basis for "said fluoroalkylpolymer". It appears that this should refer to "fluoropolymer".

Claim 19 is indefinite as presented because it is unclear which acrylate is "said acrylate". There are two acrylates in this claim and it is unclear which one is being referenced. Those claims dependent on claim 19 are also indefinite for the same reasons.

Claim 22 is indefinite as presented because there is no clear antecedent basis for "said alkyl(acrylate)". It appears that this refers to the alkyl(meth)acrylate but it is not clear for the claims as now presented.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-9, 18, 22, and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasuya *et al.* in US Patent 5,480,759.

This reference was applied previously for its disclosure of a photoconductive imaging member. Production Example 7 presents a photosensitive drum having a conductive support, an underlayer, a 0.5 μm thick charge generation layer having a binder resin and photoogenerating pigment, a 20 μm thick charge transport layer, and a 6 μm thick surface layer having charge transport functionality. This layer meets the requirements of a charge transport layer because it contains a charge transport material. The layer has 3 parts by weight of a fluorinated carbon fine powder, 5 parts of a polycarbonate binder resin, 0.3 parts of a perfluoroalkyl acrylate-methyl methacrylate polymer, 2.5 parts of a charge transporting triphenylamine, and between 0.1 and 10 ppm of FeCl (see col. 29, l. 6-34; col. 4, l. 4-9). This charge transport layer contains 46.3 % by weight of the polycarbonate, 2.8 % by weight of the perfluoroalkyl acrylate-methyl methacrylate polymer, and 23.1 % by weight of the charge transport compound. The amount of the FeCl is negligible in the charge transport layer. The total of these specific components is about 72.2 % by weight but the total amount of all components in the layer is 100 % by weight. A method of imaging using the photosensitive drum is disclosed in Example 5 where an electrostatic latent image is developed and transferred to a receiver.

Kasuya also discloses formula (11) for the fluorine-containing monomer where Rf is an alkyl group having at least one fluorine atom.

The reference does not specify that the fluoropolymer is homogeneously dispersed in the binder resin but the reference does disclose that the materials of the layer are dispersed in a

Art Unit: 1756

sand mill with monochlorobenzene and dichloromethane. This would suggest to the artisan that the materials of the layer should be thoroughly mixed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare the surface layer of Kasuya so that the perfluoroalkyl acrylate-methyl methacrylate polymer is homogeneously mixed in the surface layer because the reference discloses specific process steps to mix the components and the artisan would desire a homogenous layer so that electrical and light transmission properties are identical or substantially identical throughout.

Kasuya also does not disclose the specific ratio of monomers in the block copolymer but it would have been obvious to optimize the amounts of the component monomer units in order to obtain the results of the invention. It would also have been obvious to optimize the length of the perfluoroalkyl chain in the block copolymer within the disclosure of the reference, such as a C₈ perfluorinated alkyl (i.e., 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl), because the reference teaches that a C₄₋₁₆ alkyl can be used and the artisan would have found it obvious to use any specific length within the disclosure with fluorine-substituent starting on the third carbon atom as disclosed in the Example 7. Varying the alkyl chain length in Example 7's perfluoroalkyl acrylate-methyl methacrylate polymer, such as by one carbon atom, would have been obvious because the artisan skilled in the chemical arts would have expected similar properties from these homologues.

The artisan would also have found it obvious to optimize the thickness of the substrate in order to form a substrate with good stability for imaging.

Art Unit: 1756

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdr
25 January 2006



**CHRISTOPHER RODEE
PRIMARY EXAMINER**